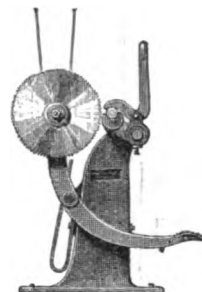
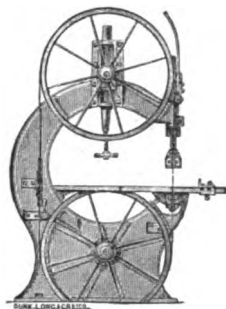


# RICHARDS, LONDON, AND KELLEY, ENGINEERS,

ATLANTIC WORKS, PHILADELPHIA, U.S.A.,  
CONSTRUCTORS OF WOOD-WORKING MACHINES  
FOR THE U.S. GOVERNMENT.

JOHN RICHARDS AND CO., EUROPEAN AGENTS,  
10, JOHN STREET, ADELPHI, LONDON.



Various Manufactures for which Machine Tools are  
furnished:

CABINETMAKING AND JOINER WORK.  
WAGONS, CARRIAGES, AND SLEIGHS.  
RAILWAY CARRIAGES AND LOCOMOTIVE CABS.  
SAWS, EDGE TOOLS, AND PLANE IRONS.  
CARRIAGE WHEELS, SPOKES, AND RIMS.  
BARRELS, TUBS, AND PAILS.  
NUTS, SCREW BOLTS, NAILS, AND RIVETS.  
SHIP AND BOAT BUILDING, WOOD AND IRON  
TOOLS.  
SEWING MACHINES, BOTH IRON AND WOOD  
WORK.  
REAPING, MOWING, AND THRASHING MA-  
CHINES.  
PLOUGHS, HOES, RAKES, AND FORKS.

FIREARMS, BOTH IRON AND WOOD TOOLS.  
AXE, PICK, SLEDGE, AND HAMMER HANDLES.  
SADDLE-TREES, HAMES, AND SHOE LASTS.  
BROOM AND HOE HANDLES, WOODEN RODS.  
VENEERS, SCALEBOARDS, AND WOOD PAPER.  
BOXES, CHESTS, AND PACKING CASES.  
OVAL PICTURE-FRAMES, AND IRREGULAR  
MOULDING.  
BENT WOOD-WORK FOR CARRIAGES, CHAIRS,  
&c.  
PENCILS, DOWELL RODS, TOYS, &c.  
BOBBINS, TOOL HANDLES, SPOUTS, BUNGS,  
&c.

STANDARD MACHINES FOR SAWING, PLANING, TURNING, MORTISING,  
TENONING, BORING, &c.

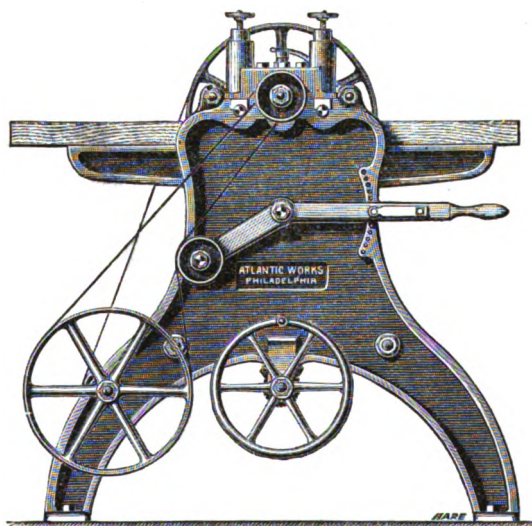
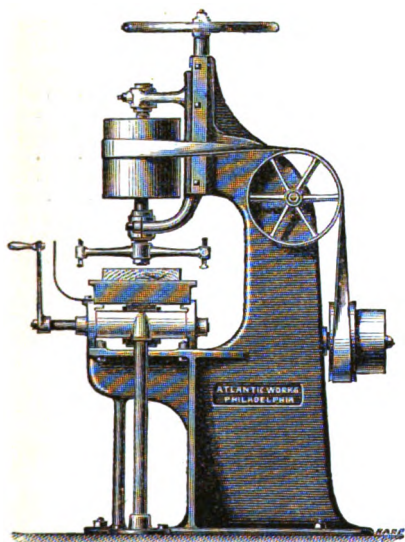
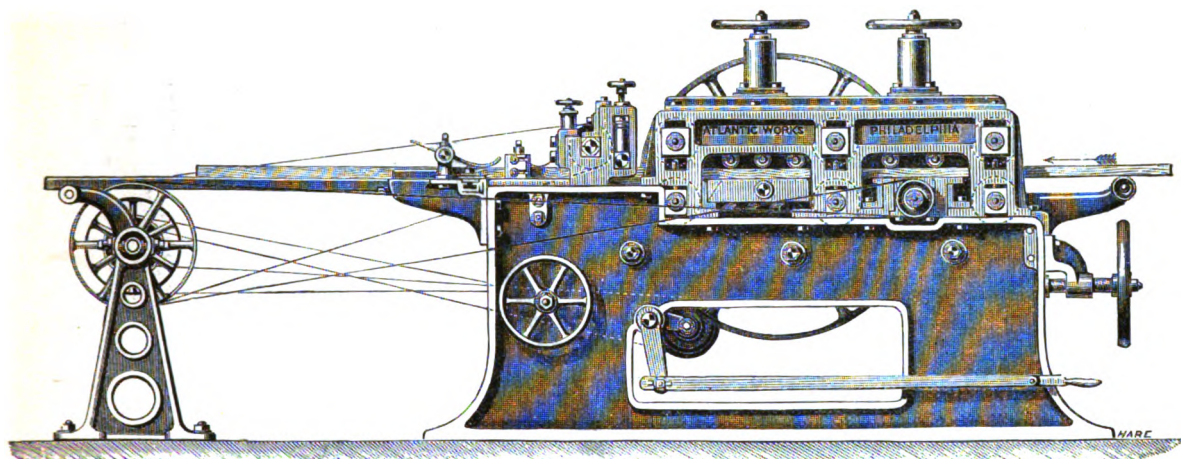
ENGINE LATHES, PLANING AND DRILLING MACHINES,

FOR PERFORMING REPAIR WORK IN WOOD FACTORIES, TO OPERATE BY HAND, OR WITH POWER.

*For Price Lists, Engravings, Estimates, and Specifications, address as above.*

RICHARDS, LONDON, AND KELLEY,  
ENGINEERS, ATLANTIC WORKS, PHILADELPHIA, U.S.A.  
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## PLANING MACHINES.



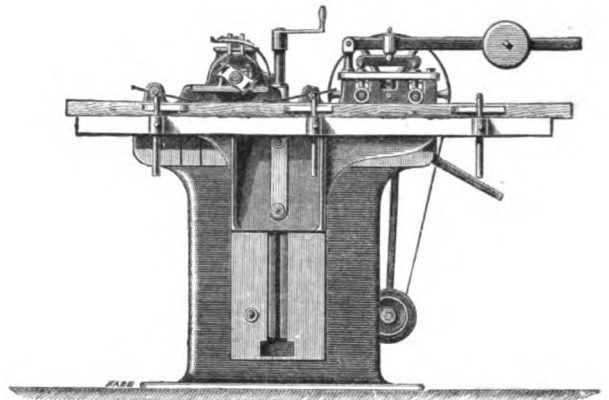
|                                                 |      |             |
|-------------------------------------------------|------|-------------|
| Surface Planing Machines .. .. .                | from | £50 to £500 |
| Floor-board Planing Machines .. .. .            | „    | £300 „ £450 |
| Planing and Matching Machines .. .. .           | „    | £90 „ £400  |
| Carriage Planing Machines (wood frames) .. .. . | „    | £55 „ £200  |
| Carriage Planing Machines (iron frames) .. .. . | „    | £100 „ £500 |

Special Planing Machines for pattern work, scantlings, volute forms, barrel staves, cigar boxes, panels, scraping, &c., &c.

Machinery delivered in Liverpool or Antwerp. No extra charge for essential details.

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X 2



## MOULDING MACHINES.

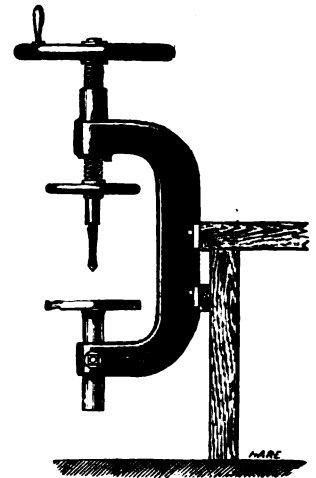
## MACHINES FOR JOINER AND CABINET WORK.

| No. |                                                      | Price. |
|-----|------------------------------------------------------|--------|
| 1   | with single cutter heads, without scribing spindles, | £30    |
| 2   | „ double „ with „ „                                  | 38     |
| 3   | „ „ „ without „ „                                    | 35     |
| 4   | „ „ „ with „ „                                       | 44     |
| 5   | single „ „                                           | 55     |
| 6   | „ „ without „ „                                      | 45     |
| 7   | double „ „                                           | 70     |

Machines Nos. 1 to 5 have wooden frames, are durable and effective, but inferior to iron-frame Machines Nos. 5, 6, and 7. No. 7 is a finely-constructed Machine; the spindles adjust in all directions; the bearings, twelve in number, are of brass; the carriages are moved on rollers.

Constructed wholly of metal, and furnished with cutter heads, one set of cutters, and other details. The cutter heads are overhung on Machines to No. 8, but have out-bearings.

| No. |                                                                                             | Price. |
|-----|---------------------------------------------------------------------------------------------|--------|
| 1   | Sash-Moulding Machine .. .. .                                                               | £40    |
| 2   | planes 3 sides to 4 inches, 1 side to 6 inches .. ..                                        | 53     |
| 3   | " 4 " 4 " 1 " 6 " .. ..                                                                     | 58     |
| 4   | " 3 " 7 " wide, 4 inches thick .. ..                                                        | 85     |
| 5   | " 4 " 7 " 4 " .. ..                                                                         | 95     |
| 6   | " 3 " 8 " 4 " .. ..                                                                         | 105    |
| 7   | " 4 " 8 " 4 " .. ..                                                                         | 115    |
| 8   | " mouldings or floor-boards to 10 inches wide,<br>5 spindles, weight 500 lb. .. ..          | 250    |
| 9   | for planing volute or spiral forms, planes to 3 inches<br>diameter, 6 sets of cutters .. .. | 95     |



## METAL-DRILLING MACHINES.

FOR HAND OR POWER.

All sizes and kinds, at prices from £10 to £100, for Machine Shops, Blacksmith Shops, and for Repair Work.

*Machinery delivered in Liverpool  
or Antwerp.*

NO EXTRA CHARGE FOR ESSEN-  
TIAL DETAILS.

RICHARDS, LONDON, AND KELLEY,  
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## BAND-SAWING MACHINES.

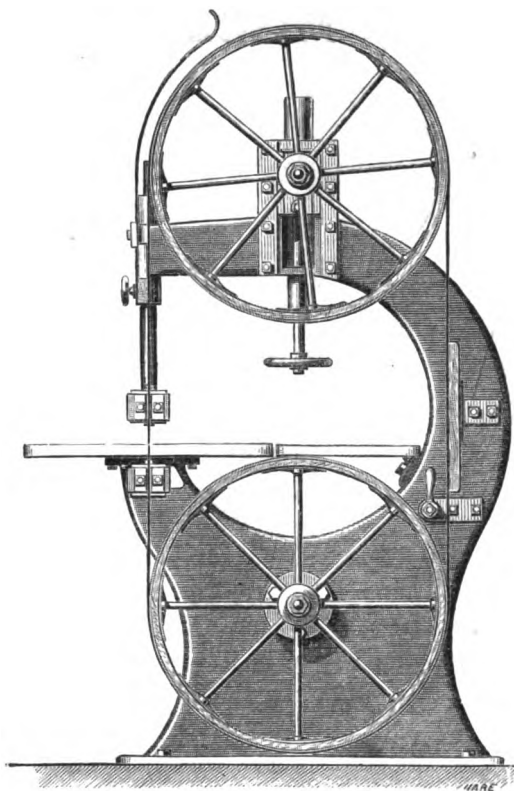
OVER 500 NOW IN USE.

|       |                        |                            |     |
|-------|------------------------|----------------------------|-----|
| No. 1 | Hand feed only,        | wheels 36 inches diameter, | £50 |
| „ 2   | „ „ „                  | „ 40 „ „                   | 70  |
| „ 2   | Hand and power feed, „ | 40 „ „                     | 95  |
| „ 3   | Hand feed only,        | „ 44 „ „                   | 90  |
| „ 3   | Hand and power feed, „ | 44 „ „                     | 120 |
| „ 4   | Hand feed only,        | „ 48 „ „                   | 150 |
| „ 4   | Power feeding,         | „ 48 „ „                   | 175 |
| „ 5   | „ „ „                  | „ 54 „ „                   | 200 |
| „ 6   | „ „ „                  | „ 72 „ „                   | 400 |
| „ 6   | Without feed           | „ 72 „ „                   | 300 |

Hand Slitting Gauge for Nos. 1, 2, and 3, £2 extra.

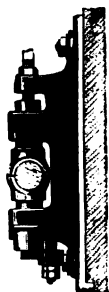
Band-Saw Mills of any size for sawing logs, deals, ship timbers, &c., to estimate.

Wheels more than 4 feet diameter are made of wrought iron; those of smaller size are made of wrought iron and wood, or of cast iron, as may be wanted.

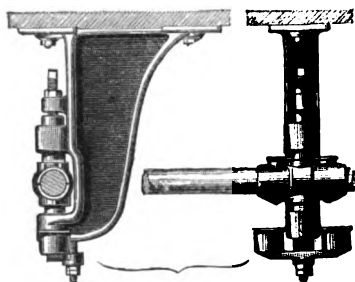


No. 1 BAND SAW.

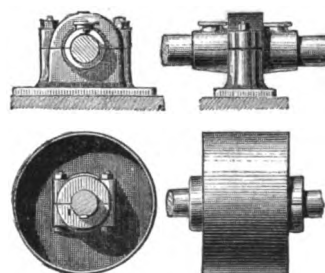
## IMPROVED FITTINGS FOR LINE SHAFTS.



Post Bracket, with bearings, adjustable and pivoted.



Suspension Bracket, with pivoted and adjustable bearings.



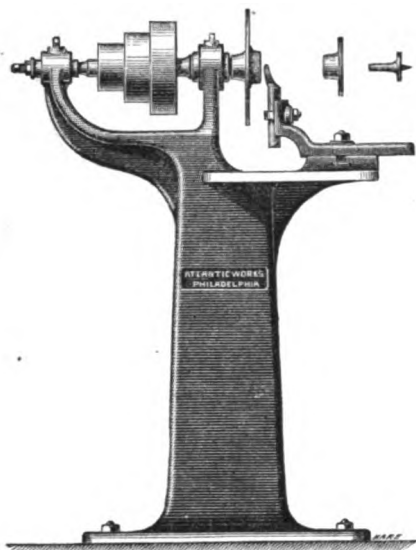
Pivot Pillow Block, and improved clamp shaft coupling.

Special Estimates made for Line Shafts and Fittings.

*Machinery delivered in Liverpool or Antwerp. No extra charge for essential details.*

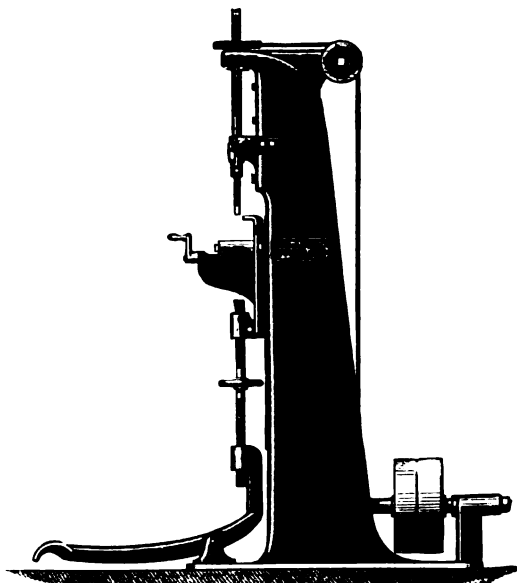
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## MISCELLANEOUS MACHINES.



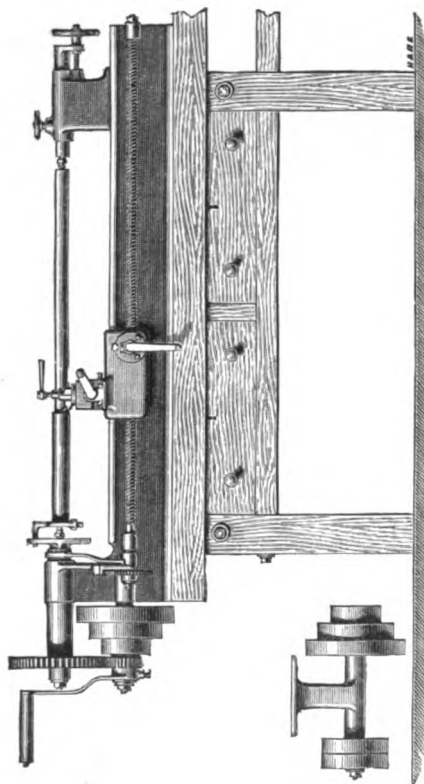
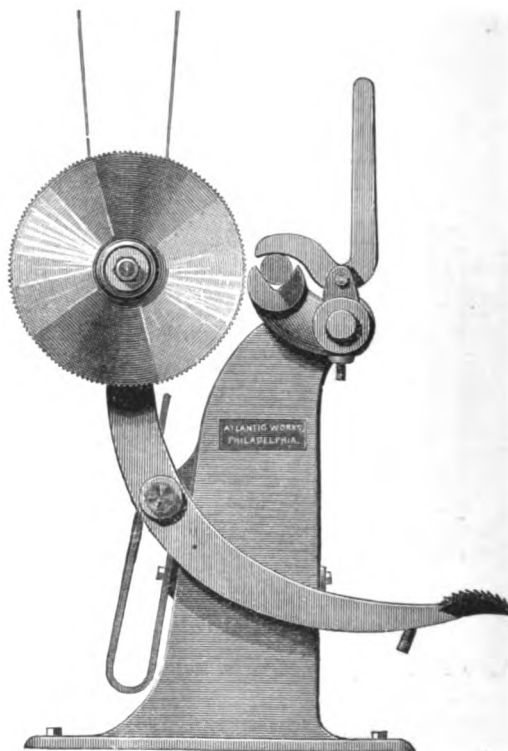
FACE LATHE FOR PATTERNS.

Price £30.



MORTISING MACHINES.

From £30 to £200.

ENGINE LATHE, for hand or power, turns 12 inches diameter.  
To turn 4 feet long. Price £25.

SAW, to cut off iron. Price £25.

*Machinery delivered in Liverpool or Antwerp. No extra charge for essential details.*

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## PRICE LIST OF VARIOUS MACHINES.

## WOOD-TURNING MACHINERY.

Plain Wood-Turning Lathes, to stand on wooden frames, furnished with countershafts, rests, and points.

|        |                       |                                 |      |
|--------|-----------------------|---------------------------------|------|
| No. 1. | Turns to 12 in. diam. | .. .. .                         | £ 12 |
| " 2.   | " 16 in. "            | .. .. .                         | 14   |
| " 3.   | " 20 in. "            | .. .. .                         | 16   |
| " 4.   | " 24 in. "            | .. .. .                         | 18   |
| " 5.   | " 24 in. "            | with face plate at both ends .. | 20   |
| " 6.   | " 24 in. "            | extra heavy dble. end           | 30   |

## AUTOMATIC LATHES FOR WOOD TURNING.

For turning runds, handles, chair spindles, and other cylindrical pieces, taper or ornamental. The frames are of iron, and the prices include countershafts.

|                                                                                             |                                                        |      |
|---------------------------------------------------------------------------------------------|--------------------------------------------------------|------|
| No. 1.                                                                                      | Turns to 3 feet long, 2 in. diameter, price ..         | £ 40 |
| " 2.                                                                                        | " 4½ " " " " " " " " " "                               | 50   |
| " 3.                                                                                        | " 6 " " " " " " " " " "                                | 60   |
| " 4.                                                                                        | Plain Lathe for long handles, turns to 7½ feet long .. | 40   |
| Gauge Lathes with Shearing Cutters from £100 to £150.                                       |                                                        | £    |
| Lathe for elliptical handles, with cutters or saws ..                                       |                                                        | 50   |
| Lathe for turning the spokes of carriage wheels ..                                          |                                                        | 85   |
| Variety Lathe for bobbins, wooden boxes, &c. ..                                             |                                                        | 85   |
| Large " " " " " " " " " " " " " "                                                           |                                                        | 95   |
| Lathe to turn spiral mouldings to 3 in. diameter ..                                         |                                                        | 95   |
| Slide Rest to turn long handles and taper forms, arranged to be used with a common Lathe .. |                                                        | 8    |

## SHAPING MACHINES FOR WOOD.

The prices include a countershaft and two sets of heads and straight cutters with each Machine—additional cutters are extra.

|        |                                                |                   |
|--------|------------------------------------------------|-------------------|
| No. 1. | with 1½ and 2 in. cutter heads, weight 500 lb. | £ 40              |
| " 2.   | " 2 " 2½ in. " " " " " " " "                   | 975 " 50          |
| " 3.   | " 2 " 2½ in. " " " " " " " "                   | 1200 " 60         |
| " 4.   | " 1½ " 1½ in. " " " " " " " "                  | one spindle .. 25 |

## ROD LATHES, OR TURNING MANDRILS.

To turn parallel cylindrical pieces, such as curtain rollers, pins, or chair braces.

|        |                                            |        |
|--------|--------------------------------------------|--------|
| No. 1. | Turns ¾, 1, and 1½ in. diam., hand feeding | £ 5 10 |
| " 2.   | " ¾, 1, and 1½ in. " " " " " " " "         | 6 0    |
| " 3.   | " 1½, 1½, and 1½ in. diam. " " " " " " " " | 7 0    |
| " 4.   | " 1½, 1½, and 1½ in. " " " " " " " "       | 7 10   |
| " 5.   | " 1½, 1½, and 2 in. " " " " " " " "        | 8 0    |
| " 6.   | " to 1½ in. diam., with feed rolls ..      | 20 0   |
| " 7.   | " to 2 in. " " " " " " " "                 | 22 0   |
| " 8.   | " to 3 in. " " " " " " " "                 | 28 0   |

Nos. 6, 7, and 8 have three cutter heads each, and are furnished with countershafts.

## MACHINERY FOR MAKING BARRELS.

|        |                                                |      |
|--------|------------------------------------------------|------|
| No. 1. | Machine to plane sawed staves .. .. .          | £ 66 |
| " 2.   | " " split staves .. .. .                       | 132  |
| " 3.   | " " barrel heads .. .. .                       | 66   |
| " 4.   | " shape and turn heads .. .. .                 | 70   |
| " 5.   | " plane and joint split heading .. .. .        | 75   |
| " 6.   | " joint and dowell heading .. .. .             | 50   |
| " 7.   | " cut staves to equal lengths .. .. .          | 20   |
| " 8.   | " joint sawed staves .. .. .                   | 100  |
| " 10.  | " joint split staves .. .. .                   | 20   |
| " 11.  | " plane and level barrels .. .. .              | 66   |
| " 12.  | " chamfer, croze, and howel .. .. .            | 100  |
| " 13.  | " turn and smooth barrels .. .. .              | 60   |
| " 14.  | " for making iron hoops .. .. .                | 50   |
| " 15.  | " sawing heads for barrels or shingles .. .. . | 65   |
| " 16.  | " sawing heads for barrels or shingles .. .. . | 60   |
| " 17.  | " cutting barrel staves .. .. .                | 50   |
| " 18.  | " setting up forms for barrels, each ..        | 5    |
| " 19.  | " to drive hoops by power .. .. .              | 132  |
| " 20.  | Elevator for barrels in process .. .. .        | 45   |

## SANDPAPERING MACHINES FOR WOOD.

|                                                                                                                |                                                                                                                                                 |     |
|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| No. 1.                                                                                                         | Machine with swing frame, discs 8 in. diam., without fan or table .. .. .                                                                       | £ 8 |
| " 2.                                                                                                           | Machine with swing frame, discs 8 in. diam., with fan, countershaft, table, and framing complete .. .. .                                        | 40  |
| " 3.                                                                                                           | Machine, 36 to 40 inches wide, to receive a whole door, framing of wood .. .. .                                                                 | 80  |
| " 4.                                                                                                           | Belt Machine, with exhausting fan and framing complete .. .. .                                                                                  | 60  |
| " 5.                                                                                                           | Machine (Barker and Ransome's Patent), to receive a whole door, with pneumatic fan, hand feeding, iron frame .. .. .                            | 150 |
| " 6.                                                                                                           | Machine (Barker and Ransome's Patent), with a carriage, self-acting, furnished with pneumatic fan. Carriage 6 feet long, 39 inches wide .. .. . | 225 |
| Sandpaper especially prepared from quartz for use on these Machines is furnished in rolls at wholesale prices. |                                                                                                                                                 |     |

## SAW BENCHES WITH WOODEN FRAMES.

| No.    | ft.           | ft.              | in.      | £  |
|--------|---------------|------------------|----------|----|
| No. 1. | Table 2½ by 4 | receives saws to | 12 diam. | 9  |
| " 2.   | " 2½ " 4½     | " " " "          | 16 " "   | 10 |
| " 3.   | " 3 " 5       | " " " "          | 20 " "   | 11 |
| " 4.   | " 3½ " 5½     | " " " "          | 24 " "   | 12 |
| " 5.   | " 3½ " 6      | " " " "          | 30 " "   | 13 |
| " 6.   | " 3½ " 6      | " " " "          | 36 " "   | 14 |

## SLITTING SAW BENCHES.

Iron Saw Benches, with fast-and-loose pulleys, the tables and spindle bearings fixed.

| No.    | ft.               | ft.              | in. diam. | £  |
|--------|-------------------|------------------|-----------|----|
| No. 1. | Saw Bench 3½ by 2 | receives saws to | 16        | 22 |
| " 2.   | " 4½ " 2½         | " " " "          | 24        | 28 |
| " 3.   | " 5½ " 2½         | " " " "          | 36        | 38 |
| " 4.   | " 6½ " 3½         | " " " "          | 42        | 45 |
| " 5.   | " 7½ " 3½         | " " " "          | 48        | 55 |

*Machinery delivered in Liverpool or Antwerp. No extra charge for essential details.*

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